any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale this species in interstate or foreign commerce, or to remove and reduce to possession the species from areas under Federal jurisdiction. In addition, for endangered plants, the 1988 amendments (Pub. L. 100–478) to the Act prohibit the malicious damage or destruction on Federal lands and the removal, cutting, digging up, or damaging or destroying of endangered plants in knowing violation of any State law or regulation, including State criminal trespass law. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances. It is anticipated that few, if any, trade permits would ever be sought or issued for *L. barnebyanum* since the species is not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, room 432, 4401 N. Fairfax Drive, Arlington, Virginia 22203 (703/358–2093, FTS 921–2093).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

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Author

The primary author of this final rule is John L. England, botanist (see **FOR FURTHER INFORMATION CONTACT**).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

2. Amend § 17.12(h) by adding the following, in alphabetical order under Brassicaceae, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
*	*	*	*	*	*	
Brassicaceae—Mustard family:						
*	*	*	*	*	*	
Lepidium barnebyanum	Barneby ridge-cress (= pepper cress).	U.S.A. (UT)	E	402	NA	NA
*	*	*	*	*	*	

Dated: September 24, 1990.

Bruce Blanchard,

Acting Director, Fish and Wildlife Service.

[FR Doc. 90–23042 Filed 9–27–90; 8:45 am]

BILLING CODE 4310–55–M

50 CFR Part 17

RIN 1018–AB38

Endangered and Threatened Wildlife and Plants; Threatened Status for Lesquerella lyrate (Lyrate bladder-pod)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines a plant, *Lesquerella lyrata* (lyrate bladder-pod), to be a threatened species under the authority contained in the Endangered Species Act (Act) of 1973, as amended. This species is currently known from only two populations in cedar glade areas of northwest Alabama (Colbert and Franklin Counties). It is extremely vulnerable due to its limited range, the loss of much suitable habitat from urbanization and agricultural practices and the apparent need for active management to sustain current populations. This action will extend the Act's protection to *Lesquerella lyrata*.

EFFECTIVE DATE: October 29, 1990.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Jackson, Mississippi, Field Office, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 316, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213.

FOR FURTHER INFORMATION CONTACT: Cary Norquist, at the above address (601/965–4900 or FTS 490–4900).

SUPPLEMENTARY INFORMATION:

Background

Lesquerella lyrata, a member of the mustard family (Brassicaceae), is an annual that ranges from 1 to 3 decimeters (4 to 12 inches) in height. Plants are shortly pubescent and usually branched near the base. The stem leaves are alternate, ovate to elliptic in shape, smooth or toothed on the margins, with prominent ear-like projections at the

bases. The flowers are ascending, on stalks 10 to 15 millimeters (mm) (0.4 to 0.6 inches) long, with yellow petals 5 to 7 mm (0.2 to 0.3 inch) in length. The fruits are silques, globose in shape, 2.5 to 3.5 mm (0.1 inch) long and 3 to 4 mm wide (0.1 to 0.2 inch) (Rollins and Shaw 1973, McDaniel 1987). This species is dormant in the summer, surviving as seeds; germinates in the fall; and overwinters as a rosette (J. Baskin, University of Kentucky, pers. comm. 1989). Plants flower from March to April, fruit and disperse seeds in late April and May.

Lesquerella lyrata is most closely related to *L. densipila*, which occurs disjunctly in Alabama (Rollins 1955). The morphologically similar *L. densipila* has fruits and styles which are pubescent as opposed to those of *L. lyrata* which are glabrous (Rollins 1955, Rollins and Shaw 1973, McDaniel 1987). Although no one questions the distinctiveness of *L. lyrata*, some suggest that a more appropriate separation of these two taxa would be at the varietal level (McDaniel 1987).

Lesquerella lyrata was discovered and described by R.C. Rollins (1955) from specimens he collected at three sites in Franklin County, Alabama. This species was thought to be extinct until it was rediscovered near the type locality in 1984 (Webb and Kral 1986). Extensive field surveys have been conducted for this species repeatedly (Webb pers. comm. 1989, Webb and Kral 1986, McDaniel 1987). However, only one additional population has been located, which is in Colbert County, Alabama (Webb and Kral 1986). In addition, no plants have been located at two of the original localities in Franklin County cited by Rollins (1955), despite repeated attempts (Webb and Kral 1986, McDaniel 1987). Currently, only two populations of *L. lyrata* are known to exist, with one each in Franklin and Colbert Counties, Alabama.

Lesquerella lyrata is a component of glade flora and occurs in association with limestone outcroppings. The terms "glade" and "cedar glade" refer to these shallow-soiled, open areas that are sometimes surrounded by cedar (*Juniperus virginiana*) woods. *Lesquerella lyrata* often occurs essentially without associates; however, at times it may occur with *Leavenworthia alabamica, Arenaria patula, Sedum puchellum* and weedy species such as *Ceratium glomeratum* and *Krigia oppositifolia*. Most of the cedar glade endemics exhibit such weedy tendencies; however, none appear to spread far from their original glade habitat (Baskin and Baskin 1986, Webb and Kral 1986). Current populations are located primarily on glade-like areas that exhibit various degrees of disturbance, including unimproved pastures, cultivated/plowed fields and roadside rights-of-way. Each population consists of several sites located within a 0.4 to 0.8 kilometer (0.25 to 0.5 mile) radius of one another. Population size varies, as with all annuals; however, at times, sites are reported to support hundreds to thousands of individuals (Webb and Kral 1986, McDaniel 1987).

Both populations are located on privately-owned lands. No sites are protected and current populations have been declining over the last few years due to succession from the lack of regular management that is needed to maintain populations of this species (Webb pers. comm. 1989, McDaniel 1987).

Federal actions involving *Lesquerella lyrata* began with Section 12 of the Endangered Species Act of 1973, which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct. This report, designated as House Document No. 94–51, was presented to Congress on January 9, 1975. On July 1, 1975, the Service published a notice (40 FR 27823) of its acceptance of the report as a petition within the context of section 4(c)(2), now section 4(b)(3)(a), of the Act and of its intention thereby to review the status of those plants. On June 16, 1976, the Service published a proposed rule (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to section 4 of the Act. *Lesquerella lyrata* was included in the Smithsonian petition and the 1976 proposal. General comments recieved in relation to the 1976 proposal were summarized in an April 26, 1978 publication (43 FR 17909).

The Endangered Species Act Amendments of 1978 required that all proposals over 2 years old be withdrawn. A 1-year grace period was given to proposals already over 2 years old. In December 1979, the Service published a notice of withdrawal of the June 16, 1976, proposal (44 FR 70796), along with four other proposals that had expired. *Lesquerella lyrata* was included as a category 1* species in a revised list of plants under review for threatened or endangered classification published December 15, 1980 (45 FR 82480). Category 1* comprises taxa for which the Service presently has sufficient biological information to support their being proposed to be listed as endangered or threatened species, but they may have already become extinct. On November 28, 1983, the Service published a supplement to the Notice of Review for Native Plants (48 FR 53640); the plant notice was again revised September 27, 1985 (50 FR 39526). *Lesquerella lyrata* was included as a category 2 species in the 1983 supplement and the 1985 revised notice. Category 2 species are those for which listing as endangered or threatened species may be warranted but for which substantial data on biological vulnerability and threats are not currently known or on file to support a proposed rule. Data obtained over the last few years supported the plant's reelevation to category 1 and listing as threatened. The data demonstrate a limited distribution and continuing threats to the species.

Section 4(b)(3) of the Endangered Species Act, as amended in 1982, requires the Secretary to make certain findings on pending petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 Amendments further requires that all petitions pending on October 13, 1982 be treated as having been newly submitted on that date. This was the case for *Lesquerella lyrata* because of the acceptance of the 1975 Smithsonian report as a petition. In October of 1983, and each succeeding year, the Service found that the petitioned listing of *Lesquerella lyrata* was warranted, but that listing this species was precluded due to other higher priority listing actions and that additional data were being gathered. On April 25, 1990, the Service published a proposal (55 FR 17552) to list *Lesquerella lyrata* as a threatened species, constituting the final petition finding required by the Act.

Summary of Comments and Recommendations

In the April 25, 1990, proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate Federal and State agencies, county governments, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices, inviting public comment, were published in the *Colbert County Times*, Tuscumbia, Alabama, on May 10, 1990, and the *Franklin County Times*, Russellville, Alabama, on May 13, 1990.

One comment was received from a private conservation organization. The commentor was supportive of the listing but recommended this *Lesquerella* be listed as endangered rather than

threatened. The Service's rationale for threatened status is addressed in the following section (see last paragraph).

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Lesquerella lyrata* should be classified as a threatened species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Lesquerella lyrata* Rollins (lyrate bladder-pod) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range. Lesquerella lyrata* is endemic to cedar glade areas in northwestern Alabama. It is thought that this species evolved in glade systems that are now highly disturbed and exist as isolated pockets surrounded by agricultural lands (Webb and Kral 1986). Some cedar glade systems continue to be adversely modified as they are utilized for agricultural purposes, while others have been destroyed by housing development or garbage dumping (Kral 1983). Baskin and Baskin (1985) state that few glades in the Southeast have been left completely undisturbed.

As noted previously in this document, *L. Lyrata* now occurs primarily in disturbed glade areas including cultivated fields and unimproved pastures. Thus, agricultural use and the survival of this species are not necessarily incompatible (Webb and Kral 1986). Periodic disturbance, such as by plowing in row crop farming, is needed to arrest succession and maintain populations of *Lesquerella lyrata* in this type of habitat. While the plant may survive under these conditions, populations may be impacted if plowing or herbicide treatment occurs in the spring prior to seed set and dispersal (mid-May). Populations located in pastures are enhanced by disturbance created from light grazing; however, if sites are heavily grazed, this could negatively impact plants by excessive soil compaction. Improvement of pastures with the introduction of forage grasses would eventually decimate populations due to competition (Kral 1983). Mowing along the roadside rights-of-way aids the species in seed dispersal; however, mowing and herbicide application prior to seed set pose a threat (Webb and Lyons 1984).

No site where *Lesquerella lyrata* occurs is protected. Thus, individual sites could be destroyed for developmental purposes as has been the case with other glade areas.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* This species is collected for scientific purposes; however, such does not pose a significant threat to this species at this time.

C. *Disease or predation.* None known.

D. *The inadequacy of existing regulatory mechanisms. Lesquerella lyrata* is unofficially considered endangered in the State of Alabama, although such designation does not afford this species any legal protection.

E. *Other natural or manmade factors affecting its continued existence.* The greatest threat to this species is its extreme vulnerability due to its limited range and small number of populations. Disturbance (natural or artificial) appears to be a key factor in the maintenance of *L. lyrata* (McDaniel 1987). Active management of sites will be required to perpetuate this species. Under natural conditions, *Lesquerella lyrata* is an early successional species that colonizes shallow cedar glade soils and then slowly disappears as the soil layer becomes further developed (E. Lyons, Amherst College, pers. comm. 1989). This species is a poor competitor and is eliminated by shade and competition from the invading perennials (Kral 1983, McDaniel 1987). Due to the continuing loss of cedar glades, presently available habitat for *L. lyrata* is limited primarily to areas modified by human activity. Current populations have declined in recent years due to succession from a lack of management/disturbance (Webb, pers. comm. 1989, McDaniel 1987). Periodic disturbance of habitat arrests succession and brings seeds to the surface which facilitates germination (Baskin, pers. comm. 1989, Webb and Lyons 1984). As with all annuals, this species' long-term survival is dependent upon its ability to reproduce and reseed an area every year. Thus, populations decline and move toward extinction if conditions remain unsuitable for reproduction for many years.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list *Lesquerella lyrata* as a threatened species. This species is not in imminent danger of extinction as current land use practices at the sites have perpetuated populations and no proposed activities are known which would suddenly change this situation. However, this species is extremely vulnerable due to its restricted range and protective measures are needed to assure this species' continued existence. Critical habitat is not being designated for reasons discussed in the following section.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for this species. Publication of critical habitat maps will increase public interest and possibly lead to additional threats for this species from collecting and vandalism. This species occurs at a limited number of sites and all are easily accessible. Publication of critical habitat descriptions and maps would make *Lesquerella lyrata* more vulnerable and increase enforcement problems. All involved State agencies and principal landowners have been notified of the location and importance of protecting this species' habitat. Protection of this species' habitat will be addressed through the recovery process and through the section 7 jeopardy standard. Therefore, it would not now be prudent to determine critical habitat for *Lesquerella lyrata.*

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its

critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

All known populations are under private ownership. The Environmental Protection Agency will consider this species relative to pesticide use.

The Act and its implementing regulations found at 50 CFR 17.71 and 17.72 set forth a series of general trade prohibitions and exceptions that apply to all threatened plants. All trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.71, would apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale this species in interstate or foreign commerce, or to remove and reduce to possession the species from areas under Federal jurisdiction. Seeds from cultivated specimens of threatened plant species are exempt from these prohibitions provided that a statement of "cultivated origin" appears on their containers. In addition, for endangered plants, the 1988 amendments (Pub. L. 100-478) to the Act prohibit the malicious damage or destruction on Federal lands and the removal, cutting, digging up, or damaging or destroying of endangered plants in knowing violation of any State law or regulation, including State criminal trespass law. Section 4(d) of the Act allows for the provision of such protection to threatened species through regulations. This protection will apply to *Lesquerella lyrata* once revised regulations are promulgated. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving threatened species under certain circumstances.

It is anticipated that few trade permits would ever be sought or issued because the species is not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, room 432, Arlington, VA 22201 (703/358-2104).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published on October 25, 1983 (48 FR 49244).

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Webb D., and E. Lyons. 1984. Site survey summary on *Lesquerella lyrata.* Unpublished. 7 pp.

Webb D.H., and R. Kral. 1986. Recent collections and status of *Lesquerella lyrata* Rollins (Cruciferae). Sida 11:347-351.

Author

The primary author of this final rule is Cary Norquist (see **ADDRESSES** Section) 601/965-4900 or FTS 490-4900.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361-1407; 16 U.S.C 1531-1544; 16 U.S.C 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.12(h) by adding the following, in alphabetical order under Brassicaceae, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
*	*	*	*	*	*	*
Brassicaceae—Mustard family:						
*	*	*	*	*	*	*
Lesquerella lyrata	Lyrate bladder-pod	U.S.A. (AL)	T	403	NA	NA
*	*	*	*	*	*	*

Dated: September 14, 1990.
Richard N. Smith,
Acting Director, Fish and Wildlife Service.
[FR Doc. 90-23043 Filed 9-27-90; 8:45 am]
BILLING CODE 4310-55-M

50 CFR Part 17

RIN 1018-AB36

Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Inflated Heelsplitter, Potamilus inflatus

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines the inflated heelsplitter mussel (*Potamilus inflatus*), to be a threatened species under the authority of the Endangered Species Act of 1973, as amended (Act). This freshwater mussel is currently known from only the Amite River, Louisiana, and the Tombigbee and Black Warrior Rivers, Alabama. Habitat modification by gravel dredging and for flood control and navigation represent major threats to this species. This rule will implement the protection of the Endangered Species Act of 1973 for the inflated heelsplitter.

EFFECTIVE DATE: October 29, 1990.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at U.S. Fish and Wildlife Service, Jackson Mall Office Center, 300 Woodrow Wilson Avenue, Suite 316, Jackson, Mississippi 39213.

FOR FURTHER INFORMATION CONTACT: James H. Stewart at the above address, (telephone 601/965-4900 or FTS 490-4900).

SUPPLEMENTARY INFORMATION:

Background

The inflated heelsplitter was first described as *Symphynota inflata* by Lea in 1831. While the taxonomic status of this species has not been questioned in the literature, there has been considerable discussion of the genus. It has been placed in *Unio*, *Lampsilis*, *Metaptera*, *Margarita*, *Margaron*, and *Proptera*, in addition to the other names discussed here (Simpson 1914, Clarke 1986, Hartfield 1988). *Potamilus* is accepted as the correct generic name by numerous authors (Morrison 1969, Valentine and Stansbery 1971, Clarke 1986, Turgeon *et al.* 1988). The common name in general usage for this species has been the Alabama heelsplitter. This rule follows the common names as used in Turgeon *et al.* (1988) in support of the effort to standardize nomenclature of mussels.

The inflated heelsplitter was known historically from the Amite and Tangipahoa Rivers, Louisiana; the Pearl River, Mississippi; and the Tombigbee, Black Warrior, Alabama, and Coosa Rivers, Alabama (Hurd 1974, Stern 1976, Hartfield 1988). The presently known distribution is limited to the Amite River, Louisiana, and the Tombigbee and Black Warrior Rivers, Alabama (Stern 1976, Hartfield 1988). The collection of this species from the Pearl River by Hinckley was reported by Frierson (1911) and a single valve collected by Parker is curated in the U.S. National Museum (Dr. James Williams, U.S. Fish and Wildlife Service, pers. comm. 1988). There are no other reported collections from the Pearl River (Hartfield 1988). A single specimen was collected from the Tangipahoa River, Louisiana, in 1964 by Stein and Stansbery (Dr. David Stansbery, Ohio State University, pers. comm. 1985). Hartfield (1988) did not find the species in the Tangipahoa River during his survey. Hurd (1974) doubted the occurrence of this species in the Coosa River based upon the single lot available in museums. The species has not been reported from the Coosa or Alabama Rivers in over 20 years (Hurd 1974, Hartfield 1988).

The inflated heelsplitter has an oval, compressed to moderately inflated, thin shell. The valves may gape anteriorly, the umbos are low, and there is a prominent posterior wing that may extend anterior to the beaks in young individuals. The shell is brown to black and may have green rays in young individuals. The umbonal cavity is very shallow and the nacre is pink to purple. Shell length reaches 140 millimeters (5½ inches) in adults (Stern 1976). It is most similar to the pink papershell (*Potamilus ohioensis*), yet is easily distinguished by shell morphology (Hartfield 1988). The shell and teeth of the inflated heelsplitter are more delicate, and the shell is darker and has a pointed posterior, whereas the pink papershell has a rounded posterior. The inflated heelsplitter appears more inflated due to a more developed and rounded posterior ridge. The posterior wing of the inflated heelsplitter is more pronounced and abruptly rounded over the dorsum. The pink papershell may lack much of a wing, and when pronounced, it may be only slightly rounded and extend scarcely above the dorsum (Hartfield 1988). Lending further taxonomic strength to this species' distinction is the occurrence of the pink papershell in lakes and sloughs, while the inflated heelsplitter has not been found in this habitat.

The preferred habitat of this species is soft, stable substrates in slow to moderate currents (Stern 1976). It has been found in sand, mud, silt and sandy-gravel, but not in large gravel or armored gravel (Hartfield 1988). It is usually collected on the protected side of bars and may occur in depths over 20 feet. The occurrence of this species in silt may not indicate that the life cycle can be successful in that substrate (Hartfield 1988). Adult mussels may survive limited amounts of silt where juveniles would suffocate. The occurrence of this species in silt may be because it was established prior to deposition of the silt.

The inflated heelsplitter was listed as a category 2 candidate (a taxon for which data in the Service's possession indicate listing is possibly appropriate) in the notice of review published in the **Federal Register** on May 22, 1984 (49 FR 21664) and January 6, 1989 (54 FR 554). The proposal to list this species was published on October 27, 1989 (54 FR 43835), and a public hearing (held on March 14, 1989) and reopening of the comment period were announced on February 21, 1990 (55 FR 6020).

Summary of Comments and Recommendations

In the October 27, 1989, proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. The comment period was reopened and extended until March 25, 1990, to accommodate the public hearing. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice was published in the *Montgomery Advertiser*, Montgomery, Alabama, on November 24, 1989; the *Baton Rouge Advocate*, Baton Rouge, Louisiana; the *Tuscaloosa News*, Tuscaloosa, Alabama; the *Mobile Press Register*, Mobile, Alabama; and the *Birmingham News*, Birmingham, Alabama, on November 25, 1989. The newspaper notice of the public hearing and reopening of the comment period was published in the *Baton Rouge Advocate*, *Mobile Press Register*, and the *Times Picayune*, New Orleans, Louisiana, on February 24, 1990, and in the *Tuscaloosa News* on February 25, 1990. Five comments were received and are discussed below. A public hearing was requested by the Warrior-Tombigbee Development Association. The hearing

was held at the Mississippi Natural Science Museum, Jackson, Mississippi, on March 14, 1990, with seven people attending. Comments were received from three individuals following a statement by the Service.

The Louisiana Department of Wildlife and Fisheries provided a letter in support of the proposal. One Federal agency provided information on hydropower plants without expressing a position on the proposal. A private company commented without stating a position. Two U.S. Army Corps of Engineers' offices commented by copy of memoranda sent to their Washington office. The Mobile District Corps of Engineers' office expressed support for protection of the species, while raising some concerns that are discussed below. The Lower Mississippi Valley Division, Corps of Engineers, did not express a position on the proposal while acknowledging that projects on the Amite River, Louisiana, will require coordination with the Service.

Written comments and oral statements presented at the public hearing and received during the comment periods are covered in the following summary. Comments of a similar nature or point are grouped into a number of general issues. These issues and the Service's response to each are discussed below.

Issue 1: Is the data adequate to support the listing and should listing be deferred while more data is acquired?

Response: The listing is based upon literature records, a Service contracted survey, and surveys by Service biologists of mussels in all the major river systems of Alabama, Louisiana, and Mississippi. The Service does not believe that additional populations will be found outside the river systems from which the species is currently known. To defer the listing will only defer protection of the species.

Issue 2: One commenter questioned if the data supported the Service's contention that habitat modification is a result of gravel dredging, flood control and major navigation projects and that these factors represent major threats to the existence of the inflated heelsplitter.

Response: The removal of substrate by gravel dredging, flood control and maintenance for navigation permanently alters the habitat and frequently renders it unsuitable for mussels. Numerous studies have demonstrated that riverine mussels cannot survive in impoundments, many of which are for flood control and navigation. The deposition of spoil from channel maintenance for navigation will suffocate mussels (U.S. Army Corps of Engineers 1987). The entire Amite River is subject to gravel dredging and impacts from flood control projects (Hartfield 1989). The lower Tombigbee River is almost continually dredged for channel maintenance with much of the spoil disposal occurring within the river banks. This results in mussels being covered with sediment and suffocated (U.S. Army Corps of Engineers 1987). The construction of numerous impoundments on the Alabama, Tombigbee, Black Warrior, and Coosa Rivers has resulted in a decline in many species of riverine mussels as evidenced by numerous surveys.

Issue 3: The Service should sample to determine if effluents below Tombigbee River Mile 74 are the reason mussels are not present.

Response: The proposed and final rules state that mussels were not found downstream of this site and this was possibly due to effluent discharge. The absence of mussels is supported by field survey results. The cause for this lack of mussels is presented as an observation and possibility rather than a fact supported by data. The Service agrees that sampling to determine why mussels no longer occur in that area would be desirable.

Issue 4: The Service should defer listing while additional information is gathered or consider some reasonable and prudent alternatives to listing.

Response: The Service has reviewed available scientific and commercial data relevant to this species and considers it sufficient to make a determination. The Service could not find an alternative to listing that would protect this species, nor has anyone else proposed such an alternative.

Issue 5: Has the proposed rule been reviewed by individuals outside the Service to ensure the determination will be unbiased?

Response: A notice of intent to propose this species for listing, dated June 6, 1989, was provided to Federal and State agencies that could have projects that may affect this species. After publication, the Service provided a copy of the proposed rule to more than 100 agencies, organizations, and individuals and published a legal notice in several local newspapers to notify the public. All resulting comments were fully considered.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the inflated heelsplitter should be classified as a threatened species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to the inflated heelsplitter are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The inflated heelsplitter historically occurred in the Amite and Tangipahoa Rivers, Louisiana; the Pearl River, Mississippi; and the Tombigbee, Black Warrior, Alabama, and Coosa Rivers, Alabama (Hurd 1974, Stern 1976, Hartfield 1988, 1989). It is currently known from only the Amite, Tombigbee and Black Warrior Rivers. Only one specimen has been collected from the Tangipahoa River, and in a recent survey by Hartfield (1988) no additional specimens were found. Hartfield found the upper Tangipahoa River to be much smaller than areas where this species occurs in other rivers. The stretch of the Tangipahoa River where the one specimen was collected has been severely eroded in recent years, pesumably by gravel mining (Hartfield 1988).

The inflated heelsplitter has been reported from two areas on the Pearl River, Mississippi. One site was in the lower Pearl downstream of Bogalusa, Louisiana (Williams, pers. comm. 1988) and the other site was near Jackson, Mississippi (Frierson 1911). The exact collecting site is unkown for both of these records. The Pearl River near Jackson has been impacted by pollution, channelization, flood control levees, and by an impoundment for recreation and a municipal water supply. The lower Pearl River near Bogalusa has been impacted by channel erosion, habitat modification for navigation, and industrial and urban pollution (Hartfield 1988). Based upon the scarcity of records from the Coosa River, Hurd (1974) doubted the historic occurrence of this species in that system. It has not been reported from that system since the construction of impoundments for flood control and hydropower.

The type specimen was reported from the Alabama Rvier by Lea (1831) and the species has been reported from this same river by others (Conrad 1834, Simpson 1914). However, it has not been collected from the Alabama River in many years, presumably due to the impoundment of that system for navigation, flood control, and hydropower (Hartfield 1989).

The only known site for this species in the Black Warrior River is below Selden (=Warrior) Dam near Eutaw, Alabama. A single sepcimen was collected by Grace in the mid-1970's (Williams, pers. comm. 1985). A survey by Service divers in 1989 found two fresh dead shells but no live individuals. The species undoubtedly continues to survive in the Black Warrior River below Selden Dam. The remainder of the Black Warrior River has been impacted by impoundment for navigation and sedimentation from surface mining.

The species continues to survive in the Tombigbee River in at least two localities, Gainesville Bendway and downstream of Coffeeville (=Jackson) Dam. Most of the Tombigbee River was modified by construction of the Tennessee-Tombigbee Waterway. This resulted in the loss of riverine habitat by impoundment, channelization, and flow diversion. Habitat that was originally believed would continue to support mussel populations has been destroyed by heavy accumulations of sediment. The only known population of the inflated heelsplitter in the Waterway is below Gainesville Spillway where the normal river flow, with the exception of navigation lockages, is released from this impoundment (Paul Hartfield, Mississippi Department of Wildlife Conservation, pers. comm. 1989). This has maintained a relatively clean and stable habitat suitable to this species.

The only other known population in the Tombigbee River occurs downstream of Coffeeville Dam. In this stretch, the species has been collected by Service and Mississippi Department of Wildlife Conservation biologists at four sites over a 12 river mile area. Below the lowermost of these collecting sites, no mussels were found by surveys in 1985 and 1986 by Service and Department biologists, possibly due to impacts from industrial effluents. The entire Tombigbee River has been modified for navigation by impoundment and channelization, and frequent dredging is required to maintain the navigation channel. Navigation dredging threatens this population by the deposition of spoil on bars along the sides of the river channel (Hartfield 1988). This material washes onto mussel habitat below the bars and may suffocate mussels and make conditions unfavorable for recruitment.

The inflated heelsplitter continues to exist in the Amite River with major threats being gravel mining and proposed channel modification for flood control. Hartfied (1989) concluded that 30 percent of the range of this species in the Amite River had been lost since 1976, primarily due to gravel mining. Without protection, this loss is expected to continue with the intensive gravel mining and resulting headcutting that is ongoing. The Corps of Engineers and Louisiana Department of Transportation and Development are studying methods of flood control on the Amite River. The proposed Darlington Reservoir would be constructed upstream of existing inflated heelsplitter habitat and the actual impoundment of the stream may not impact this population of the species. The impact of this reservoir will likely be determined by the type and method of water releases. A deep water release would result in colder water temperatures, which may interrupt the life cycle of this mussel. The control of water flows, especially during low water levels, could strand mussels on dry bars and may reduce the capacity of the river to flush sediments from mussel habitat. An alternative flood control measure under consideration is the widening and channelization of the Amite River. This potential action would likely eliminate the inflated heelsplitter from the Amite River, leaving the only population in the Tombigbee and Black Warrior system.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* The species is not of commercial value at this time and any collecting is likely to be for scientific purposes. Over collection is not considered a threat

C. *Disease or predation.* Diseases are not known for mussels, although unexplained dieoffs, have occurred. Predation may exist to a limited extent when muskrats and raccoons prey on mussels. This would have a minimal effect since this species seems to prefer deeper water.

D. *The inadequacy of existing regulatory mechanisms.* Existing laws are inadequate to protect this species. It is not recognized by Alabama or Louisiana as needing any special protection. Both States have regulations that protect mussels that are federally listed. The species is not given any special consideration under other environmental laws when project impacts are reviewed.

E. *Other natural or manmade factors affecting its continued existence.* The known populations are isolated from each other and apparently are limited in extent. This could result in low genetic variation and make these populations more susceptible to environmental disturbance due to loss of adaptability.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list the inflated heelsplitter as threatened. Threatened status was chosen because the species still exists in three rivers, and the range within two of these rivers consists of reproducing populations that are widely distributed.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary designate any habitat of a species that is considered to be critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for this species at this time due to the lack of benefit from such designation. All Federal and State agencies likely to be involved have been notified of the location and importance of protecting this species' habitat. No additional benefits would accrue from a critical habitat designation that would not accrue from the listing. Precise locality data are available to appropriate agencies through the Service office described in the **ADDRESSES** section. Protection of this species' habitat will be addressed through the recovery process and through the Section 7 jeopardy standard. Therefore, it is not prudent to declare critical habitat for the inflated heelsplitter.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part

402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal involvement is expected to include the Environmental Protection Agency in consideration of the Clean Water Act's provisions for pesticide registration, and waste management actions. The Corps of Engineers will include this species in project planning and operation and during the permit review process. The Federal Highway Administration will consider impacts of bridge and road construction at points where known habitat is crossed. Continuing urban development within the drainage basins may involve the Farmers Home Administration and their loan programs.

The Act and implementing regulations found at 50 CFR 17.21 and 17.31 set forth a series of general prohibitions and exceptions that apply to all threatened wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or to attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving threatened wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22, 17.23, and 17.32. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. For threatened species, there are also permits for zoological exhibition, educational purposes, or special purposes consistent with the purposes of the Act.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to Section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

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Author

The primary author of this rule is James H. Stewart (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.11(h) by adding the following, in alphabetical order under "CLAMS," to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
CLAMS							
*	*	*	*	*	*	*	
Heelsplitter, inflated	*Potamilus inflatus*	U.S.A. (AL, LA, MS)	NA	T	404	NA	NA
*	*	*	*	*	*	*	

Dated: September 24, 1990.

Bruce Blanchard,

Acting Director, Fish and Wildlife Service.

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